

REMARKS

Remark 1:

Applicant has filed replacement drawings sheets 1 of 2 and 2 of 2 herewith to overcome the grounds for objection raised by the Examiner. Applicant submits the drawings are in condition for allowance.

Remark 2:

Applicant has amended independent claims 1, 5 and 9 to distinguish the present invention from those cited by the Examiner. Applicant submits the claims are in condition for allowance.

In particular, Applicant has further defined the independent claims of the present invention to read over "cryogenic liquid" turbine generators and pumps having "product-lubricated" main bearings.

As described in the specification, the problem arises when it becomes desirable to reduce the span between the main bearings in order to offset the reduction in the critical speed resulting from increased generator sizes. As described, relocating the lower bearing 6 by the requisite amount entails dramatically increasing the length of the thrust balancing device. The resultant differential shrink between the thrust plate 8 and the shaft 4 due to the thermal affects caused by the cryogenic liquid itself would cause the variable orifice gap 20 to increase to such a degree that the thrust equalizing device would be rendered inoperable.

Again, the problem only arises in turbines and pumps for handling cryogenic liquids utilizing a thrust equalizing mechanism. As described, *the solution to this problem is to integrate a length compensator 26 component composed of a material that shrinks less than the shaft.*

Remark 3:

Applicant hereby requests the Examiner withdraw the cited references by Fisher et al, Agnes et al and Brown as obviating references under 35 USC 103(a) inasmuch as the cited references are nonanalogous art.

The Examiner's attention is respectfully drawn to the Manual of Patent Examination Practice, and in particular to section 2141.01(a):

TO RELY ON A REFERENCE UNDER 35 U.S.C. 103, IT MUST BE ANALOGOUS PRIOR ART

The examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. "Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed." KSR International Co. v. Teleflex Inc., 550 U.S. ___, ___, 82 USPQ2d 1385, 1397 (2007). Thus a reference in a field different from that of applicant's endeavor may be reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his or her invention as a whole.

While the Court recently slightly eased up on the requirement for a finding of the traditional "suggestion-teaching-motivation" in obviating prior art, it clearly cannot have intended the Patent Office to completely do away with the well known doctrine that hindsight reconstructions based on the Applicants' own invention are vehemently forbidden. In re Fritch, 23 U.S.P.Q. 2d 1780, 1784 (Fed. Cir. 1992).

In the present case, Examiner has cited 3 prior art references all directed to electric motors, not electric generators, turbines or pumps. The cited prior art references are completely unrelated to cryogenic liquid handling equipment. The problems associated with an increased shaft length between stationary bearings on a cryogenic liquid turbine or pump in a system utilizing a thrust equalizing mechanism would

not arise with the direct drive electric motors cited by Examiner. It would not be logical to expect the attention of an inventor in a cryogenic liquid, chemical engineering-type position to be drawn to prior art solutions found in the design of electric motors, and more particularly, to the spacing between a rotor hub and magnetic surfaces disposed therein.

Moreover, the teachings cited by Examiner teach away from the present invention. The sleeve 14 described in Brown maintains components in tension, as compared to the use of stainless steel which is described as having "about the same thermal expansion as the rotor hub and will move away from the magnet surface when rotating." However, the present invention is directed to a "spacer", i.e., a component which serves to increase the distance between component parts. This is the opposite of trying to maintain "tension" between component parts. In the present invention, it is this increase in distance due to the spacer itself which must be compensated for. The teaching of Brown, i.e., the use of a fiberglass sleeve material to maintain rotor and magnets closely coupled together, would teach away from the solution to use a fiberglass spacer to reduce the span between main bearings in a cryogenic liquid turbine or pump.

Remark 4: (NO NEW MATTER)

Applicant submits that the corrections presented herein present no new matter. All of the devices, systems, methods and/or compositions claimed herein are taught in the Drawings, Specification, Claims and Abstract and other portions of the Application as originally filed.

Remark 5: (REQUEST FOR TELEPHONIC OR IN-PERSON EXAMINER'S INTERVIEW)

Applicant hereby invites and requests the Examiner to attempt to resolve any further defects, deficiencies, errors or other grounds of rejection or objection to the present application, either on a formal or informal basis, by Telephonic or In-Person Examiner's Interview under 37 CFR 1.133 (see also MPEP 713.01 et seq.). Attorney for Applicant(s) can be reached from 9:00 AM-5:00 PM Monday-Friday at

telephone number 650-348-1444 or by fax to (650) 348-8655 or by e-mail at
RKS@ATTYCUBED.COM.

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AMENDMENT AND RESPONSE
Filing Date: February 10, 2004
Date Transmitted: November 10, 2008

Title: **THRUST BALANCING DEVICE FOR CRYOGENIC FLUID MACHINERY**
Serial No.: 10/776,555
Attorney Docket No.: EIC-401
Amd&Resp 111008-Filed.wpd

CONCLUSION

Applicant respectfully submits that for all the foregoing reasons, the claimed subject matter describes patentable invention. Furthermore, Applicant submits that the specification is adequate and that the claims are now in a condition for allowance. No new matter has been entered.

Applicant hereby respectfully requests Examiner to withdraw the cited references as anticipating or obviating prior art, enter these amendments, find them descriptive of useful, novel and non-obvious subject matter, and authorize the issuance of a utility patent for the truly meritorious, deserving invention disclosed and claimed herein.

Without further, Applicant does not intend to waive any claims, arguments or defenses that they may have in response to any official or informal communication, paper, office action, or otherwise, and they expressly reserve the right to assert any traverse, additional grounds establishing specificity and clarity, enablement, novelty, uniqueness, non-obviousness, or other patentability, etc.

Further, nothing herein shall be construed as establishing the basis for any prosecution history or file wrapper estoppel, or similar in order to limit or bar any claim of infringement of the invention, either directly or under the Doctrine of Equivalents.

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Respectfully submitted,

RAY K. SHAHANI
ATTORNEY AT LAW

Dated: November 10, 2008

By: /Ray K. Shahani, Esq./
Ray K. Shahani, Esq.
Attorney for Applicant(s)

Ray K. Shahani, Esq. Registration No.: 37,554
Attorney at Law
Twin Oaks Office Plaza
477 Ninth Avenue, Suite 112
San Mateo, California 94402-1854
Telephone: (650) 348-1444 Facsimile: (650) 348-8655
E-mail: rks@attycubed.com

CERTIFICATE OF TRANSMISSION

I hereby certify that this paper and the documents referred to as attached therein are being filed using USPTO TEAS service under 37 CFR 1.10 on the date indicated and is addressed to "Commissioner for Trademarks. Signed: /Leo K. Lai/
Date Mailed: November 10, 2008

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